



U.S. Patent Application Serial No. 10/764,505
Reply to OA dated July 27, 2006

In the Claims:

Claim 1 (Currently Amended): A radiation treatment apparatus comprising:

a radiation generating unit that emits radiation;

a movable member that rotatably supports the radiation generating unit on two rotational axes crossing each other;

a guide that moves the movable member carrying the radiation generating unit along an orbit with a predetermined radius about an isocenter such that the emitted radiation crosses at one point;

a support member that rotates the guide about a turning axis extended through the isocenter and arranged in parallel with a plane defined by the orbit;

an imager that acquires information of a radiation transmission image of an area including the isocenter; and

a control unit which controls two axes of the movable member that rotatably supports the radiation generating unit, to change a radiation direction of the radiation generating unit on the basis of the information ~~acquires~~ acquired by the imager.

Claim 2 (canceled).

Claim 3 (Original): The radiation treatment apparatus according to claim 1, wherein the movable member is disposed on at least a pair of rails provided on the guide.

Claim 4 (Original): The radiation treatment apparatus according to claim 1, wherein the guide has a range of movement of the radiation generating unit, which is greater than a range that permits the radiation generating unit to emit the radiation to the isocenter in opposite directions.

Claim 5 (Original): The radiation treatment apparatus according to claim 1, wherein the guide is supported by the support member at one portion on the turning axis.

Claim 6 (Original): The radiation treatment apparatus according to claim 1, wherein the guide is supported by the support members at two portions on the turning axis on both sides of the isocenter.

Claim 7 (Original): The radiation treatment apparatus according to claim 1, wherein the guide is provided in an arcuate shape and is supported by the support member on a turning axis horizontally extending through the isocenter.

Claim 8 (Original): The radiation treatment apparatus according to claim 1, wherein the guide is provided in an arcuate shape and is supported by the support member on a turning axis vertically extending through the isocenter.

Claim 9 (Original): . The radiation treatment apparatus according to claim 1, wherein the guide is provided in an annular shape and is supported by the support member on a turning axis horizontally extending through the isocenter.

Claim 10 (Original): The radiation treatment apparatus according to claim 1, wherein the guide is provided in an annular shape and is supported by the support member on a turning axis vertically extending through the isocenter.

Claim 11 (Original): The radiation treatment apparatus according to claim 1, wherein the support member is fixed to a position closer to the floor than to the isocenter.

Claim 12 (Original): The radiation treatment apparatus according to claim 1, wherein the support member is fixed to a position closer to the ceiling than to the isocenter.

Claim 13 (Original): The radiation treatment apparatus according to claim 5, wherein the support member has a drive unit, which rotates the guide about the turning axis, at a location where the guide is rotatably supported.

Claim 14 (Original): The radiation treatment apparatus according to claim 6, wherein the support member has a drive unit, which rotates the guide about the turning axis, at least at one of locations where the guide is rotatably supported.

Claim 15 (Previously Presented): The radiation treatment apparatus according to claim 1, wherein the movable member has a drive unit that moves by holding a belt provided on an outer peripheral side of the guide.

Claim 16 (Original): The radiation treatment apparatus according to claim 1, wherein the radiation generating unit has a variable collimator having a window, which can change a shape, for emission of radiation.

Claim 17 (Canceled).

Claim 18 (Previously Presented): The radiation treatment apparatus according to claim 1, wherein the imager includes a plurality of radiation sources for acquiring the radiation transmission image, the radiation sources emitting radiation crossing at the isocenter, and detectors paired with the radiation sources, the detectors detecting the radiation that has been emitted from the radiation

sources and has passed through the isocenter.

Claim 19 (Canceled).

Claim 20 (Previously Presented): The radiation treatment apparatus according to claim 1, further comprising a variable collimator that alters a cross-sectional shape of the radiation emitted from the radiation generating unit, and a control unit that alters the shape of a window of the variable collimator to emit the radiation on the basis of the information acquired by the imager.

Claim 21 (Previously Presented): The radiation treatment apparatus according to claim 1, wherein the imager is an X-ray CT scanner.

Claim 22 (Original): The radiation treatment apparatus according to claim 1, further comprising a microwave source which supplies microwaves to the radiation generating unit via a waveguide, the microwave source being positioned apart from the movable member and the guide.

Claim 23 (Original): The radiation treatment apparatus according to claim 1, further comprising a movable table that positions an object of radiation within a range including the isocenter.

Claim 24 (Original): The radiation treatment apparatus according to claim 23, wherein the movable table has a slide board on which the object of radiation is placed, and a drive mechanism that moves the slide board along three orthogonal axes.

Claims 25 - 38 (Canceled).

Claim 39 (Currently Amended): A radiation treatment apparatus comprising:

a radiation generating unit that emits radiation;

a movable member that rotatably supports the radiation generating unit on two rotational axes crossing each other;

a guide that moves the movable member carrying the radiation generating unit along an orbit with a predetermined radius about an isocenter such that the emitted radiation crosses at one point;

a support member that rotates the guide about a turning axis extended through the isocenter and arranged in parallel with a plane defined by the orbit; and

a microwave source which supplies microwaves to the radiation generating unit via a waveguide, the microwave source being positioned apart from the movable member and the guide.

U.S. Patent Application Serial No. 10/764,505
Reply to OA dated July 27, 2006

Claim 40 (Previously Presented): The radiation treatment apparatus according to claim 1,
wherein the imager comprises two sets of radiation sources and detectors.